

**REMARKS**

Claims 1-57 were pending in this application. No claims have been canceled. Hence, claims 1-57 remain pending in this application.

Claims 10, 26, and 33 have been amended to clarify that the claimed device/apparatus is configured to be mounted on an air mask. Support for the amendment may be found throughout the specification in general, and at least on page 9, lines 9-11.

Claims 34 and 43 have been amended to clarify that the claimed invention is designed to warn of a low oxygen partial pressure condition in an air mask. Support for the amendment may be found throughout the specification in general, and at least on page 10, lines 5-7.

Claims 21-23 have been amended to clarify that the claimed apparatus is configured to be mounted on an air mask. Support for the amendment may be found throughout the specification in general, and at least on page 9, lines 9-11.

Finally, claims 44-57 have been amended to align them with the amendment that was made to claim 43.

No new matter was added.

**Allowable Subject Matter**

Applicants acknowledge with thanks the Examiner's indication of allowable subject matter in claim 9. This claim was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all the limitations of the base claim and any intervening claims.

**Claim Rejections**

Claims 10-33 and 43-57 were rejected under 35 USC 112, second paragraph as being indefinite. In making the rejection, the Examiner states as follows:

In claims 10-33 and 43-57, the Applicants is required to clarify to what the claim is intended to be drawn to, i.e., either the apparatus alone or the combination of the apparatus and the air mask. The Applicants sets forth the combination of the apparatus and the air mask when describing the structure associated with the breathing mask, which is inconsistent with preamble, that sets forth the subcombination of the apparatus. Applicants is required to make the language of the claims consistent with the intent of the claims. It should also be noted that in considering the claims on the merits, the Examiner will consider the claims as drawn to the combination.

Claims 1-5, 26-29, 34-38, 42 were rejected under 35 U.S.C. 102(b) as being anticipated by Cramer et al. (U.S. Patent No. 4,109,509). In making the rejection, the Examiner states as follows:

Cramer et al. teaches a method/apparatus for monitoring an oxygen partial pressure in an air mask of an oxygen system, comprising: generating a signal corresponding to the oxygen partial pressure in the air mask, the signal generated independently of the oxygen system; comparing the generated signal with a reference signal corresponding to a desired oxygen partial pressure; and vibrating a portion of the air mask if the generated signal is determined to be lower than the reference signal; detecting the oxygen partial pressure in the air mask; sounding an alarm if the generated signal is determined to be lower than the reference signal; amplifying the generated signal (col. 3, lines 31-41); and selectively shutting off the generated signal (col. 2, lines 25-27).

Claims 13 and 46 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al. In making the rejection, the Examiner states as follows:

Cramer et al. teaches the apparatus as taught above. It should be noted that Cramer et al. fails to specifically teach wherein the power source is a communication system power source. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the power source as recited in the claim because the particular of the power source are a mere design choice. Furthermore, the Applicants has not disclosed why the particulars of the power source are of importance or solve a stated problem or provide an advantage over the prior art.

Claims 6, 16, 30, 39, and 49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al. in view of Palti (U.S. Patent No. 6,091,974). In making the rejection, the Examiner states as follows:

Cramer et al. teaches a method/apparatus for monitoring an oxygen partial pressure in an air mask of an oxygen system, comprising: generating a signal corresponding to the oxygen partial pressure in the air mask, the signal generated independently of the oxygen system; comparing the generated signal with a reference signal corresponding to a desired oxygen partial pressure; and vibrating a portion of the air mask if the generated signal is determined to be lower than the reference signal; detecting the oxygen partial pressure in the air mask; sounding an alarm if the generated signal is determined to be lower than the reference signal; amplifying the generated signal; and selectively shutting off the generated signal. It should be noted that Cramer et al. fails to specifically teach wherein the generated signal is an electric current, further comprising converting the electric current into a corresponding voltage. Palti teaches that it is known for an electric current to be as a voltage (col. 3, lines 35-38). Therefore it would have been obvious to convert an electric current signal to a voltage for monitoring.

Claims 7, 8, 17, 18, 31, 40, 41, 50, and 51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al. in view of Doron et al. (U.S. Patent No. 6,239,724). In making the rejection, the Examiner states as follows:

Cramer et al. teaches a method/apparatus for monitoring an oxygen partial pressure in an air mask of an oxygen system, comprising: generating a signal corresponding to the oxygen partial pressure in the air mask, the signal generated independently of the oxygen

system; comparing the generated signal with a reference signal corresponding to a desired oxygen partial pressure; and vibrating a portion of the air mask if the generated signal is determined to be lower than the reference signal; detecting the oxygen partial pressure in the air mask; sounding an alarm if the generated signal is determined to be lower than the reference signal; amplifying the generated signal; and selectively shutting off the generated signal. It should be noted that Cramer et al. fails to specifically teach wherein the generated signal is an analog signal, further comprising digitizing the analog signal into a digital signal having a predetermined number of bits. Doron et al. teaches that it is known for an analog signal to be digitized into a digital signal for transferring information (col. 13, lines 24-32). Therefore it would have been obvious to convert an analog signal to digital format for sending and recording information. As to claims 8, 18, 41, and 51, Cramer/Doron teaches wherein the reference signal is stored in a memory unit, the comparing step comprising comparing the digitized generated signal with stored reference signal (col. 3, lines 31-41, '509).

Claims 10-12, 14, 15, 20-22, 43-45, 47, 48, and 52-55 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al. in view of Tripp, Jr. et al. (Invention Registration No. H1039). In making the rejection, the Examiner states as follows:

Cramer et al. teaches a method/apparatus for monitoring an oxygen partial pressure in an air mask of an oxygen system, comprising: a sensor; a comparator; a power source; a vibrator; an alarm; an amplifier; wherein the power source is a battery; switch selectively capable of disconnecting the power source; wherein the sensor, comparator, and vibrator are integrated into a single unit. It should be noted that Cramer fails to teach a sensor mounted in an air mask. Tripp, Jr. et al. teaches a common mask with sensors mounted in an air mask for monitoring a user's physiological condition. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount the sensor of Cramer in a mask to for sensing informative parameters relating to the physiological well-being of a pilot or other persons (col. 12, lines 9-11).

Claims 23 and 55 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al. in view of Tripp, Jr. et al. and in further view of Wiesmann et al. in (U.S. Patent No. 6,199,550). In making the rejection, the Examiner states as follows:

Cramer/Tripp teach the method/apparatus as taught above. It should be noted that Cramer/Tripp fails to teach wherein the air mask is configured to be fitted on a firefighter's helmet. Wiesmann et al. teaches a common mask configured to be fitted on a firefighter's helmet (see Fig. 1). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the mask to fit a firefighter's helmet to monitor the physiologic condition of the firefighter.

To the extent the rejections may be applied to the amended claims, these rejections are respectfully traversed.

### **The Claimed Invention**

The present invention, as recited in amended claim 1, is directed to a method of monitoring an oxygen partial pressure in an air mask of an oxygen system. The method

comprises the step of generating a signal corresponding to the oxygen partial pressure in the air mask, the signal generated independently of the oxygen system, comparing the generated signal with a reference signal corresponding to a desired oxygen partial pressure, and vibrating a portion of the air mask if the generated signal is determined to be lower than the reference signal.

Independent claims 10, 26, 33, 34, and 43 recite similar elements and limitations.

### **Arguments in Support of the Claims**

With respect to the rejection of the claims under 35 USC 112, second paragraph, Applicants respectfully disagree that claims 10-33 and 43-57, as originally filed, set forth the combination of the apparatus and the air mask. Claim 10, for example, recites a **sensor**, a **comparator**, a **power source**, and a **vibrator**. None of these elements form part of the air mask, and no part of the mask was claimed. To the extent the mask is referenced in the claim, it is included merely as a limitation on the recited elements. Nevertheless, claims 10, 26, and 33 have been amended to clarify that the claimed device/apparatus is configured to be mounted on the air mask. Applicants respectfully submit that it is now even more clear that the invention recited in these claims is directed to a device/apparatus for monitoring oxygen partial pressure in an air mask and is not the air mask itself. On the other hand, claim 43 and the claims depending therefrom have now been amended to recite that the invention is directed to an air mask. Accordingly, withdrawal of this rejection is respectfully request.

With respect to the rejection under 35 USC 102(b), the Examiner contends that independent claims 1, 26, and 34 are anticipated by Cramer et al. A rejection based on anticipation is held to an extremely high standard. In order to anticipate, every element **and limitation** of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375 (Fed. Cir. 2001), *cert. denied*, 122 S. Ct. 1436 (2002). The test for anticipation is whether the claim reads on the product or process disclosed in the prior art, **not on what that reference broadly teaches**. *SSIH Equip. S.A. v. United States Int'l Trade Comm'n*, 718 F.2d 365, 218 USPQ 678 (Fed. Cir. 1983).

With respect to independent claims 1, 26, and 34, Applicants respectfully submit that Cramer et al. merely teaches the broad concept of monitoring the oxygen partial pressure. It does not teach all the specific elements and their limitations recited in the claims. For example, Cramer et al. does not teach the step of generating a signal corresponding to the oxygen partial

pressure **in the air mask**. Here, the phrase “in the air mask” is a limitation on the step of generating a signal and must be present in Cramer et al. for there to be anticipation. The Examiner may not simply ignore this limitation.

With respect to claim 1, Cramer et al. also does not teach the step of **vibrating a portion of the air mask** if the generated signal is determined to be lower than the reference signal. Such vibration of the air mask has been found to be extremely effective, for example, in alerting the pilot to a potential hypoxia condition. As one might imagine, the sudden and unexpected sensation of vibrations on one’s face will jolt a drowsy person wide awake much more so than lights or audible alarms. Cramer et al., however, does not teach the step of vibrating at all, much less vibrating a portion of an air mask. It merely discloses a light, a bell, or a buzzer (note that buzzers are audible alarms, not vibrators). Col. 3, lines 36-38. Again, as explained above, anticipation requires that **every element and limitation** be present in the prior art reference. *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 36 USPQ2d 1101 (Fed. Cir. 1995) (“Invalidity based on lack of novelty (often called ‘anticipation’) requires that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee.”)

With respect to the rejection under 35 USC 103(a), the Examiner contends independent claims 10 and 43 are obvious over Cramer et al. in view of Tripp, Jr. et al. “When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a **teaching, motivation, or suggestion** to select and combine the references relied on as evidence of obviousness.” *In re Sang Su Lee*, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1443 (Fed. Cir. 2002) (emphasis added). The mere fact that a device in a cited reference could have been modified to yield a device within the claimed invention does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). The Examiner can satisfy the burden of showing obviousness of the modification “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

In the present case, Applicants respectfully submit that the Examiner has failed to show the objective teaching that would lead an ordinarily skilled person to combine Cramer et al. and

Tripp, Jr. et al. As explained above, Cramer et al. teaches the broad concept of monitoring oxygen partial pressure. This technology has been available for more than a quarter of a century. Tripp, Jr. et al. teaches monitoring a pilot's physiological condition using sensors in the air mask. This technology has been available for over a decade. Throughout all this time, and despite the ordinarily skilled person's familiarity with the shortcomings and drawbacks of using air masks, **no one** has come up with the idea of monitoring the oxygen partial pressure inside the air mask. No one, that is, except Applicants. This gaping gap in the art directly contradicts the Examiner's contention that the claimed invention is obvious under section 103(a).

Perhaps the Examiner considers the claimed invention to be merely a combination of old features that are known in the art. Such a combination, however, in and of itself, does not preclude patentability. *In re Spinnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969) ("A patentable invention, within the ambit of 35 U.S.C. Section 103, may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use.") Moreover, a simple invention is not necessarily an obvious one. *EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 906, 225 USPQ 20, 24 (Fed. Cir. 1985). Differences between the claimed invention and the prior art are only one element in determining obviousness, and awareness within the art of all the aspects of the claim does not alone constitute obviousness. *Jones v. Hardy*, 727 F.2d 1524, 1528, 220 USPQ 1021, 1024 (Fed. Cir. 1984).

Applicants also take this opportunity to remind the Examiner that "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). The Examiner "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). Moreover, "that which is within the capabilities of one skilled in the art is not synonymous with obviousness." *Ex Parte Levengood*, 28 USPQ2d 1300, 1301 (Bd. App. 1993).

In any case, Tripp, Jr. et al. actually teaches away from the claimed invention because it discloses monitoring the physiologic condition of the **person** using the air mask and not the condition in the air mask itself. Thus, an ordinarily skilled person reading Cramer et al. (which teaches monitoring the air) would not be led to Tripp, Jr. et al. (which teaches monitoring the

pilot) for answers. While the goals of the two references may be essentially the same (i.e., to make sure the pilot is awake and alert), the mechanisms they use to achieve their goals are entirely different.

As for Wiesmann et al., this reference is similar to Tripp, Jr. et al. in that it teaches monitoring the physiologic condition of the user. And Doron et al. merely teaches a telemetry system, while Palti. merely teaches implantable cells for improving the detectability of electrical signals generated by the cells.

Accordingly, because none of the cited prior art references, taken alone or in combination, discloses or suggests the invention recited in the independent claims, withdrawal of the rejection against claims 1, 10, 26, 33, 34, and 43 is respectfully requested.

As for the dependent claims 2-9, 11-25, 27-32, 35-42, and 44-57, although they may recite independently allowable subject matter, these claims depend from claims 1, 10, 26, 33, 34, and 43, respectively, and are therefore allowable for at least the same reasons. Accordingly, withdrawal of the rejection against the dependent claims is also respectfully requested.

### CONCLUSION

The rejections and objections raised by the Examiner have been addressed, and Applicants believe that the claims are now in condition for allowance, which action is respectfully requested. If any questions or issues remain and the resolution of which the Examiner feels will be advanced by a conference with the Applicants' attorney, the Examiner is invited to contact the attorney at the number noted below.

The Commissioner is hereby authorized to charge any fee which may be required, or credit any overpayment, to Deposit Account No. 10-0447, Reference No. 46782-00008USPT (DGN).

Respectfully submitted,

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